CS 1073

FR03A

Assignment #2

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**Section 1**

/\*\*

 This class represents a car.

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\*/

public class Car {

  /\*\*

   The model of the car (e.g. "Hyundai Accent").

  \*/

private String model;

  /\*\*

   The fuel efficiency of the car (in liters/100 km).

  \*/

private double fuelEfficiency;

  /\*\*

   The amount of gas in the tank (in liters).

  \*/

private double tankAmount;

  /\*\*

   The text that is on the license plate of the car (e.g. "GNB 123").

  \*/

private String plateText;

  /\*\*

   This method constructs a car with the specified model, fuel efficiency,

   and license plate text.  The gas tank is initially empty.

   @param modelIn the model of the car.

   @param fuelEfficiencyIn the fuel efficiency of the car (in liters/100 km).

   @param plateTextIn the license plate text for the car.

  \*/

public Car(String modelIn, Double fuelEfficiencyIn, String plateTextIn){

    model = modelIn;

    fuelEfficiency = fuelEfficiencyIn;

    plateText = plateTextIn;

    tankAmount = 0;

}

  /\*\*

   This method retrieves the model of the car.

   @return the model of the car.

  \*/

public String getModel(){

    return model;

}

  /\*\*

   This method retrieves the fuel efficiency of the car.

   @return the fuel efficiency of the car (in liters/100 km).

  \*/

public double getFuelEfficiency(){

  return fuelEfficiency;

}

  /\*\*

   This method retrieves the amount of gas in the tank.

   @return the amount of gas in the tank (in litres).

  \*/

public double getTankAmount(){

  return tankAmount;

}

  /\*\*

   This method retrieves the license plate text.

   @return the text that is on the license plate of the car.

  \*/

public String getPlateText(){

  return plateText;

}

  /\*\*

   This method drives the car for a certain distance, reducing the gas in the tank.

   You may assume that the car will never consume more than the available gas

   (you do NOT need to include a check for this in your solution).

   @param distance the distance driven (in km).

  \*/

public void drive(double distance){

   double gasConsumption = (fuelEfficiency/100) \* distance;

   tankAmount -= gasConsumption;

}

  /\*\*

   This method adds gas to the tank.

   @param gasAdded the volume of gas added to the tank (in liters).

  \*/

public void addGas(double gasAdded){

  tankAmount += gasAdded;

}

  /\*\*

   This method changes the license plate text.

   @param plateTextIn the text for the new license plate of the car.

  \*/

public void changePlateText(String plateTextIn){

  plateText = plateTextIn;

}

} //end Car

/\*\*

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\*/

public class CarTestDriver{

    public static void main(String[] args){

        Car GTT = new Car("Nissan R34 GTT", 11.76, "G3G 5T5");

        Car Altima = new Car ("Nissan Altima", 9.3, "S2J 8H7");

        //add gas to cars

        GTT.addGas(50);

        Altima.addGas(40);

        //drive both of the cars

        GTT.drive(200);

        Altima.drive(140);

        //change lisence plate on first  car

        GTT.changePlateText("FUN CAR");

        //print information for first car

        System.out.println(GTT.getModel() + ": Information");

        System.out.println("Plate Text: " + GTT.getPlateText());

        System.out.println("Fuel Efficiency: " + GTT.getFuelEfficiency() + "L/100km");

        System.out.println("Gas In Tank: " + GTT.getTankAmount() + "L" + "\n");

        //print information for second car

        System.out.println(Altima.getModel() + ": Information");

        System.out.println("Plate Text: " + Altima.getPlateText());

        System.out.println("Fuel Efficiency: " + Altima.getFuelEfficiency() + "L/100km");

        System.out.println("Gas In Tank: " + Altima.getTankAmount() + "L");

    }

}

**Section 2**

Nissan R34 GTT: Information

Plate Text: FUN CAR

Fuel Efficiency: 11.76L/100km

Gas In Tank: 26.48L

Nissan Altima: Information

Plate Text: S2J 8H7

Fuel Efficiency: 9.3L/100km

Gas In Tank: 26.979999999999997L

**Section 3**

/\*\*

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 \*/

 public class Tab{

    //member running the tab

    private String member;

    //seat number of the tab

    private int seatNumber;

    //amount owed on the tab

    private double amountOwed;

    /\*\*

     \* constuctor method to initialize the variables

     \* @param memberIn

     \* @param seatNumberIn

     \*/

    public Tab(String memberIn, int seatNumberIn){

        member = memberIn;

        seatNumber = seatNumberIn;

        amountOwed = 0.00;

    }

    //methods to recieve the information in the constructed variable

    public String getMemberName(){

        return member;

    }

    public int getSeatNumber(){

        return seatNumber;

    }

    public double getAmountOwed(){

        return amountOwed;

    }

    /\*\*

     \*method that adds the price of an item to the tab

     @param itemPrice

    \*/

    public void buyItem(double itemPrice){

        amountOwed += itemPrice;

    }

    /\*\*

     \* method to calculate the tip and output it

     \* @param tipPercent

     \* @param tip

     \*/

    public double addTip(double tipPercent){

        double tip;

        tip = (tipPercent/100) \* amountOwed;

        return tip;

    }

 }

/\*\*

 @author Ethan McCarthy 3573807

 \*/

 public class FriendsMeetup{

    public static void main(String[] args){

        Tab mikesTab = new Tab("Mike Smith", 3);

        mikesTab.buyItem(2.50);

        Tab sarahsTab = new Tab("Sarah Jones", 1);

        sarahsTab.buyItem(2.85);

        Tab jinsTab = new Tab("Jin Chen", 2);

        jinsTab.buyItem(5.50);

        Tab ellasTab = new Tab("Ella Paul", 7);

        ellasTab.buyItem(2.75);

        ellasTab.buyItem(7.50);

        sarahsTab.buyItem(15.50);

        jinsTab.buyItem(12.75);

        mikesTab.buyItem(8.75);

        mikesTab.buyItem(13.45);

        ellasTab.buyItem(4.75);

       System.out.println("Name: " + mikesTab.getMemberName());

       System.out.println("Seat #: " + mikesTab.getSeatNumber());

       System.out.println("Amount Owed: " + mikesTab.getAmountOwed());

       System.out.println();

       System.out.println("Name: " + sarahsTab.getMemberName());

       System.out.println("Seat #: " + sarahsTab.getSeatNumber());

       System.out.println("Amount Owed: " + sarahsTab.getAmountOwed());

       System.out.println();

       System.out.println("Name: " + jinsTab.getMemberName());

       System.out.println("Seat #: " + jinsTab.getSeatNumber());

       System.out.println("Amount Owed: " + jinsTab.getAmountOwed());

       System.out.println();

       System.out.println("Name: " + ellasTab.getMemberName());

       System.out.println("Seat #: " + ellasTab.getSeatNumber());

       System.out.println("Amount Owed: " + ellasTab.getAmountOwed());

       System.out.println();

       System.out.println(mikesTab.getMemberName() + "'s Tip amount: " + mikesTab.addTip(20));

       System.out.println(sarahsTab.getMemberName() + "'s Tip amount: " + sarahsTab.addTip(18));

       System.out.println(jinsTab.getMemberName() + "'s Tip amount: " + jinsTab.addTip(16));

       System.out.println(ellasTab.getMemberName() + "'s Tip amount: " + ellasTab.addTip(16));

    }

 }

**Section 4**

Name: Mike Smith

Seat #: 3

Amount Owed: 24.7

Name: Sarah Jones

Seat #: 1

Amount Owed: 18.35

Name: Jin Chen

Seat #: 2

Amount Owed: 18.25

Name: Ella Paul

Seat #: 7

Amount Owed: 15.0

Mike Smith's Tip amount: 4.94

Sarah Jones's Tip amount: 3.303

Jin Chen's Tip amount: 2.92

Ella Paul's Tip amount: 2.4